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**Bull et al.**

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(54) **INFORMATION AGGREGATION AND  
SYNTHESIZATION SYSTEM**

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1996.

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1996.

(51) **Int. Cl.<sup>7</sup>** ..... **G06F 17/60**

(52) **U.S. Cl.** ..... **705/14; 705/10**

(58) **Field of Search** ..... **705/14, 26, 10;  
395/200.31, 200.33, 200.47, 200.54; 709/202,  
203, 217, 218, 219; 707/3, 6**

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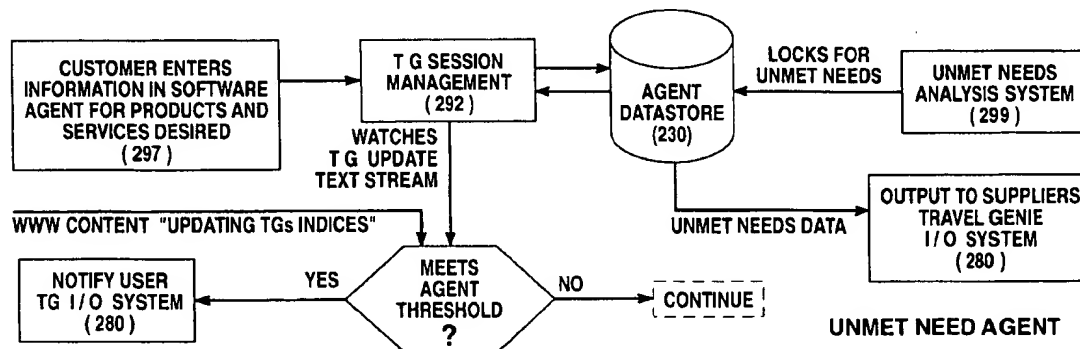
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(57) **ABSTRACT**

An information aggregation and synthesization system and process. The present invention provides aggregation and packaging of structured or unstructured information from disparate sources such as those available on a network such as the Internet. A network compatible/addressable interface device is operated by a user. The network interface device communicates with local datastores or network accessible datastores via an addressing scheme such as Uniform Resource Locator addresses (URLs) utilized by the Internet. Data passing between the network interface device and the datastores is accessed, polled, and retrieved through an intermediary gateway system. Such aggregated information is then synthesized, customized, personalized and localized to meet the information resource requests specified by the user via the network interface device.

**12 Claims, 7 Drawing Sheets**



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TITLE: Information aggregation and synthesization system

----- KWIC -----

Abstract Text - ABTX (1):

An information aggregation and synthesization system and process. The present invention provides aggregation and packaging of structured or unstructured information from disparate sources such as those available on a network such as the Internet. A network compatible/addressable interface device is operated by a user. The network interface device communicates with local datastores or network accessible datastores via an addressing scheme such as Uniform Resource Locator addresses (URLs) utilized by the Internet. Data passing between the network interface device and the datastores is accessed, polled, and retrieved through an intermediary gateway system. Such aggregated information is then synthesized, customized, personalized and localized to meet the information resource requests specified by the user via the network interface device.

Brief Summary Text - BSTX (12):

3) Data Organization--Lockwood uses preindexed videodisks. The present invention indexes prequalified WWW sites, updating these as they change or as users expand their WWW searches.

Brief Summary Text - BSTX (19):

2) Levinson would establish user inputted profiles for "Automatic Data Retrieval". The present invention supplements user provided profile information by constructing implicit profile recognition patterns, based upon historical search activity.

Brief Summary Text - BSTX (34):

The user is presented with a variety of search, display and output options.

The search options include: 1) Search using key words or combinations; 2) Use of complex software text search agents that have been predefined by the information aggregation and synthesization system site operators. These agents take advantage of the expansive subject matter expertise in understanding which search parameters will best serve the user's search needs; 3) Use of search patterns and agents from this user's previous sessions, perhaps expanded by available specials and promotions; 4) Natural Language Query; and 5) Some combination of 1), 2), 3) and 4).

Brief Summary Text - BSTX (35):

The user selects information to be viewed from the results of the search. This information is retrieved from its source and presented to the user in the manner and at the time requested. The available display options include but are not limited to: display on the user's network capable device, personal TV channel, customized Internet page, custom CD-ROM, electronic mail, mobile devices (Personal Digital Assistants, telephones and pagers) and facsimile. Information retrieval and display can be text, still pictures, videos, Interactive multimedia, audio and geographic.

Brief Summary Text - BSTX (36):

Along with displays, including those for data entry, searches, search results, information retrieval, the user will be presented with advertisements and/or coupons based on criteria entered by advertisers. This criteria may take the form of simple logic, linking an ad/coupon with a display or be derived from complex software text search agents that analyze one or more of the following: The user's looking pattern, the user's psychographic profile, the user's personal profile, the availability of the advertiser's/couponer's goods or services at the instant in time that the criteria is being exercised. The placement of the ad/coupon will be logged along with user profile information and provided to the advertiser/couponer in some form of report.

Brief Summary Text - BSTX (37):

During a user session or when a user completes a session, the user's looking activity is analyzed for patterns, preferences and trends and the profile annotated or updated so that when they next use the information aggregation and synthesization system, the nominated searches will be customized to their individual desires.

Brief Summary Text - BSTX (39):

## I. URL Munging

### Brief Summary Text - BSTX (40):

The World Wide Web ("WWW") is characterized by computer (user) connection through an Internet Service Provider to any WWW address or site. Hence, use of the WWW is like placing individual telephone calls to many merchants, trying to compare products and services. URL Munging is the process that allows the goods and services of many merchants to be displayed through a single virtual shopping center.

### Brief Summary Text - BSTX (44):

The Internet user will select World Wide Web (WWW) content for retrieval using a search engine to return selected WWW references. The user will then select certain of these references to be included in a custom CD which will be burned or recorded onto a CD and then sent by express delivery to the user.

### Brief Summary Text - BSTX (51):

As the user uses the information aggregation and synthesization system, the pattern of information being viewed is analyzed and the user presented with search ideas as well as promotions and specials from suppliers based on these patterns.

### Brief Summary Text - BSTX (58):

In the course of a session, the user may desire information not yet available. This information could be in the form of a product, a service or an event. The user then can establish a persistent (stays around after the user's session is over) complex software text search agent to monitor future information additions to the System and alert the user through a variety of means (facsimile, electronic mail, text page, voice, pager) that the information that was requested is available or in some instances, provide the information directly. The set of persistent agents will also be analyzed by the information aggregation and synthesization system operators and provided to potential suppliers who would in turn develop new product offerings which would be added to the information aggregation and synthesization system sources.

### Detailed Description Text - DETX (10):

A theme or definition of a class of information (e.g., central California travel and tourism or new automobiles) is identified. Data sources (Local DataStores (500 . . . N) and Network Accessible DataStores (300 . . . N)) are screened for relevance, quality of information and appropriateness (or may be included de facto based on their title or description). These are indexed using a text indexing software tool 2981 and the indices stored on the system index DataStore 220. An initial set of Preestablished Software Text Agents are defined. These agents are words or combinations of words that form a word based search pattern. This initial set of agents is relevant to the searches that might be performed against the class of information that was indexed. (i.e., Agents about automobiles would be developed to search a class of indexed information about new cars). These are stored in the Preestablished Software Text Agent DataStore 231. The System 200 uses any multipurpose computer central processing units with the ability to handle multiple inputs and outputs with the necessary hard disk storage and to run World Wide Web (WWW) or other network server software.

#### Detailed Description Text - DETX (13):

Advertisers, using a user access system 100 enter criteria that should met for an advertisement/coupon placement. These criteria are in the form of the complex software text search agents described above. This includes a match "threshold". When this threshold is met or exceeded, an ad/coupon will be appended to a system session. Statistical analysis known as clustering is used to evaluate the data.

#### Detailed Description Text - DETX (16):

Lead Purchasers, using a user access system 100 enter criteria that should be met for the generation of a lead. These criteria are in the form of the complex software text search agents described above. This includes a match "threshold". When this threshold is met or exceeded, information about the current user and the information being viewed is stored in the lead datastore 270 for variable output transmission to the lead purchaser.

#### Detailed Description Text - DETX (19):

Local datastores (500 . . . N) and network accessible datastores (300 . . . N) will change randomly and will become out of synchronization with the system index datastore 220. The data monitoring system 2982 will periodically monitor local datastores (500 . . . N) and network accessible datastores (300 . . . N) and when there is a change, update the index datastore 220.

Detailed Description Text - DETX (32):

The user is also presented with browsing options based on: activity from a previous session in the browsing activity datastore 240; predeveloped software text agents and personalized software text agents (developed in the Post Session Activity) stored in the Personal **Search** Text Agent DataStore 232; or combinations of all as well as situational opportunities developed by the user greeting subsystem 291. The user selects the **search** options to be used (or simply enters **search** criteria directly). This **search** criteria is used to **search** the index datastore 220 and a list of data sources is presented to the user for selection. The user indicates the information to be viewed. The user will also be presented with options to refine his **search** through the altering of **search** agent criteria (**Search** Reduction System 293).

Detailed Description Text - DETX (36):

The user interrupt system 294 will **periodically** notify the user of specialized software text agents that they may want to pursue. These Agents are stored in the agent datastore 230 and are derived by the real time session analysis system 295 which monitors the browsing activity datastore 240 during the user's session.

Detailed Description Text - DETX (42):

**Periodically**, either due to a preset time interrupt, or user or advertiser event driven activity, the following can occur:

Detailed Description Text - DETX (52):

Information about each Ad/Coupon appended to an information aggregation and synthesization system along with known information about the user is stored in the advertising activity datastore 260. This is reported out **periodically** to the advertisers/couponers using the I/O System 280.

Detailed Description Text - DETX (54):

During a session or after a user discontinues use, the data viewed (recorded in the browsing activity datastore 240) is analyzed by the session profile update 2921 and the user profile datastore 210 is updated with keywords or personal **search** text agent datastore 232.

Detailed Description Text - DETX (56):

**Periodically**, the Software Text Lead Agents stored in the lead generation agent datastore 235 are used to analyze the data viewed (recorded in the browsing activity datastore 240) and reports prepared for lead purchasers using the I/O System 280.

Detailed Description Text - DETX (77):

232 Personal **Search** Text Agents

Detailed Description Text - DETX (98):

293 **Search** Reduction System

Detailed Description Text - DETX (122):

These are complex software text **search** patterns predefined by the site subject matter experts using their extensive knowledge of information contained within the site's indices.

Detailed Description Text - DETX (123):

232 Personal **Search** Text Agents

Detailed Description Text - DETX (124):

These are complex software text **search** patterns that may be individual words or word sets and/or combinations of words and Preestablished Software Text Agents 231 including the results of the post session analysis 2921 that provide individually customized searching of the Index DataStore 220.

Detailed Description Text - DETX (126):

These are complex software text **search** patterns that when matched within the text being reviewed within a given session, cause an advertisement/coupon to be added into the display. These can be direct insertion or conditioned from criteria on the Advertiser's Computer Systems (400 . . . N) and/or the user's profile from the user profile datastore 210.

Detailed Description Text - DETX (128):

These are complex software text **search** patterns created by the user to persist after the end of the user session looking for patterns and/or specific

events or data that are observed within the System 200 at some future time.

Detailed Description Text - DETX (130):

These are complex software text search patterns that when matched within the text being reviewed within a given session, causes an addition to the Lead DataStore 270 for output to the lead purchaser using the I/O System 280.

Detailed Description Text - DETX (152):

This allows the user to designate certain data to be placed onto a CD-ROM along with all necessary search and viewing software as well as non user requested ads and promotions.

Detailed Description Text - DETX (159):

This is the subsystem that identifies users, customizes search screens, incrementally collects explicit profile information and formulates search agent screens and search specials which may be situational or seasonal or both.

Detailed Description Text - DETX (164):

293 Search Reduction System

Detailed Description Text - DETX (165):

This aids the search by suggesting changes to the complex software text search agents to refine the user's search.

Detailed Description Text - DETX (176):

This is the facility that indexes designated DataStores (either Network Accessible DataStore (300 . . . N) or Local DataStores (500 . . . N) upon operator input or periodically and stores these indices in the Index DataStore 220.

Detailed Description Text - DETX (178):

This facility, periodically or on demand, checks indices stored in the Index DataStore 220 against actual data (either Network Accessible DataStore (300 . . . N) or Local DataStores (500 . . . N)) and if it has changed, queues for operator review or updates indices.



Detailed Description Text - DETX (191):

I. URL Munging

Detailed Description Text - DETX (193):

The user, through a network addressable interface device such as the user access system 100, will connect with a local or network accessible datastore. The user will select a page (designated by a Uniform Resource Locator or URL) to be used. The URL will be modified or "munged" so that retrieval must go through the present invention when the user executes a retrieval request. This then permits return of requested data to the user from the datastore, at all times passing through the present invention 200.

Detailed Description Text - DETX (194):

The URLs embedded in each page that pass through are indexed by the present invention or "munged" so that any hyper linking to another WWW site always goes through the present invention. As an example, "WWW.anywhere.com" is converted to "WWW.travelgenie.com? WWW.anywhere.com", even though the user will see a direct path to the distant site.

Detailed Description Text - DETX (195):

Accordingly, when the user clicks on a URL (or types it in a browser's search request), the user will connect to the requested site through the system 200.

Detailed Description Text - DETX (197):

The user of a network addressable interface device will select World Wide Web (WWW) data content for retrieval using a search engine to return selected WWW references. The user will then select and designate certain of these references to be included in a custom CD-ROM which will be burned or recorded onto a compact disc and then sent by express delivery to the user.

Detailed Description Text - DETX (215):

In the present invention, the user's WWW viewing patterns are monitored. These and optionally the user's profile 210 are matched against software text

agents entered by a supplier in an agent datastore 230. When these agents match a pattern or profile, the supplier is notified. Additionally, when this profile is approximately matched, the supplier is notified. Lead purchasers, using a user access system 100, will enter criteria that should be met for the generation of a lead. These criteria are in the form of complex software text search agents. When this threshold is met or exceeded, information is stored in the lead datastore 270 for variable output transmission to a lead purchaser.

Detailed Description Text - DETX (219):

If the user does not find what they are looking for, a "watcher" agent may be set up to advise them if the object of their search occurs at some future time. An example would be a tour, a price or some other information. Through the session management system 292 a threshold will be established on the user need.

Claims Text - CLTX (7):

collecting data reflecting search patterns of the users.

Claims Text - CLTX (17):

5. The computer of claim 4, wherein the processor is further configured to collect data reflecting search patterns of the users.

Claims Text - CLTX (25):

collecting data reflecting search patterns of the users.

Claims Text - CLTX (34):

means for collecting data reflecting search patterns of the users.

Current US Original Classification - CCOR (1):

705/14

Current US Cross Reference Classification - CCXR (1):

705/10

Other Reference Publication - OREF (7):

Yuwono et al., "Search and Ranking Algorithms for Locating Resources on the

World Wide Web," IEEE, pp. 164-171, 1996.